DOCUMENT RESUME

ED 047 077 UD 011 285

AUTHOR Tuckman, Bruce W.; Bierman, Milton
TITLE Beyond Pygmalion: Galatea in the Schools.
PUB DATE Feb 71
NOTE 24p.; Paper presented at the Annual Meeting of the American Educational Research Association, New York, N.Y., February 1971

EDRS PRICE EDRS Price MF-$0.65 HC-$3.29
DESCRIPTORS *Ability Grouping, *Academic Achievement, Attendance, Grouping Procedures, *High School Students, *Junior High School Students, *Negro Students, Self Esteem, Self Evaluation, Student Attitudes, Student Motivation, Student Teacher Relationship, Suburban Schools, Suburban Youth, Teacher Influence
IDENTIFIERS New Jersey

ABSTRACT

The effect of a major success-failure symbol in the school and source of both teacher and student expectations--homogeneous ability-grouping--was studied via a true experiment. Four hundred and twenty-one black high school and junior high schocl students in a suburban-city school system were arbitrarily and without fanfare moved up to the next higher ability group while 384 comparable students were retained in their assigned groups as controls. Of those moved up, 54 percent were subsequently recommended by their teachers for the higher group as compared to one percent of the controls. Experimentals also achieved higher scores on standardized achievement tests. Thus, grouping assignment was shown to affect teacher expectations and student performance. (Author/JM)

ED 047077

BEYOND PYGMALION: GALATEA IN THE SCHOOLS

Bruce W. Tuckman
Rutgers University

and

Milton Bierman
Montclair, New Jersey
Public Schools

The effect of a major success-failure symbol in the school and source of both teacher and student expectations- homogeneous ability-grouping- was studied via a true experiment. 421 black high school and junior high school students in a suburban-city school system were arbitrarily and without fanfare moved up to the next higher ability group while 384 comparable students were retained in their assigned groups as controls. Of those moved up, 54% were subsequently recommended by their teachers for the higher group as compared to 1% of the controls. Experimentals also achieved higher scores on standardized achievement tests. Thus, grouping assignment was shown to affect teacher expectations and student performance.

ED047077

UD011285

BEYOND PYGMALION: GALATEA IN THE SCHOOLS[1]

Bruce W. Tuckman and Milton L. Bierman
Rutgers University Montclair, N.J. Public Schools

Rosenthal and Jacobson (1968) discovered Pygmalion, the sculptor-teacher who was able to confer beauty and elegance upon Galatea, his statue and willing pupil. Because Pygmalion believed Galatea to be beautiful and alive, she became so. The Pygmalion effect seems believable despite some criticism of it (e.g., Thorndike, 1968) and some failures to replicate or extend it (e.g., Haberman, 1970). The fact that teachers can affect the performance of students by virtue of the expectations they have for them makes emminent sense and can probably be documented under those conditions where it most noticeably manifests itself. In fact, the recent work of Brophy and Good (1970) provides documentation of some mechanisms that teachers seem to employ in communicating their expectations.

If students' behavior is a function of students' expectations for themselves, and if students' expectations for themselves are in part a function of teachers' expectations of them, then the beliefs of the "sculptor" are not as likely to effect the behavior of the "statue" as are their shared

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.

beliefs. Rather than telling teachers which students have potential, why not tell both teachers and students which students have potential. By telling students we are trying to manipulate their expectations directly and need not wonder about how expectations get transmitted from teacher to student. If manipulating teachers' expectations produces the Pygmalion effect, then manipulating students' expectations directly can be expected to produce the Galatea effect.

Schools employ many mechanisms for affecting students' expectations of themselves (and teachers' expectations of them) although it is likely that these affects are unintended and the manipulators unwitting. Homogeneous ability-grouping is potentially such a mechanism. In a homogeneous ability-grouping system, students are assigned to levels of a course based on their potential "ability" in that course as "predicted" by prior grades, standardized test scores, and, most importantly, the recommendations of their prior teacher in that subject. While in theory, students can move with fluidity between these groups, in practice, movement is more noticeable by its absence (Tuckman, 1970). Moreover, a student's ability-group assignment is like a "flag" of his ability as defined by the school. It is not unreasonable to expect that a student's expectation for himself will be affected by the system's expectations for him as embodied in his ability-group assignments. These assignments are likely

to affect the expectations held by teachers as well.

The purpose of this study was to examine the affect obtained by reassigning students to higher ability-groups than those assigned them by the system in comparison to otherwise comparable students who were not reassigned. Since grouping practices have been labelled as discriminatory in some communities, this study concentrated on Black students as those chosen for reassignment as a way of further examining any such bias that may be built into grouping as a way of lowering the expectations of Black students for themselves and of their teachers for them.

While the effects of ability-grouping have been looked into in a number of studies, they have never been specifically examined as expectancy phenomena. Consequently, this literature lacks great relevance to the present endeavor. However, it has been reviewed by Tuckman (1970), and appears that no difference findings, homogeneous grouping-superior findings, and grouping-inferior findings occur with equal probability. Of course this depends in part on how one defines one's variables and the specific conditions of the study.

This study was concerned specifically with the two junior high schools and one high school in a city of about 45,000 people in transition from an affluent suburb to a mixture of ghetto and suburb. In this system, students were assigned in each subject matter to high (1), medium (2), and

low (3) ability-groups in each subject matter based primarily on the recommendation of their immediately previous teacher in that subject. Assignments were made on a yearly basis. In this study a group of Black students in medium and low groups were randomly divided in half and half were subsequently reassigned to the higher group. Thus, a group of Black students who had been recommended by their teachers for the medium ability group suddenly found themselves assigned to high ability groups, while a group recommended for low groups appeared in medium groups.

Two general hypothesis were offered as follows:

(1) Black students reassigned to higher groups (hereafter called experimentals) perform better on standardized tests, and receive higher grouping recommendations by their teachers than do black students not reassigned to higher groups (the controls).

(2) Students to whose classes experimentals are assigned (mixed comparisons) perform no differently than students who do not have experimentals upwardly displaced into their classes (unmixed comparisons).

If the Galatea phenomenon is valid, that is, if students' performances are influenced by self-expectations, and these self-expectations are influenced by institutional identity trappings such as ability-group assignment, then reassigning students to higher ability-groups should alter their performance. Moreover, this reassignment should also alter

expectations of teachers for these students. This should be particularly true for Black students who seem to have been discriminated against by the standardized performance situations upon which grouping assignments are in part based. If reassigned students improve in performance, their presence in higher groups should not, moreover, adversely affect the work of the students to whose classes they have been added.

Since the school system used three ability-groups, the study included a replication or parallel experiment with students moved from medium to high groups compared to medium controls and students moved from low to medium groups compared to low controls. Comparison groups were used at both high and medium levels. In essence, then, each hypothesis was tested twice. A variety of dependent measures in addition to those cited in the hypotheses were also examined. These are described in the next section.

Method

Subjects

Subjects were 805 Black students enrolled in junior high school (grades 7-8) or high school (grades 9-12) in the public school system of a "suburban city." Of the total number of subjects, 421 participated in an Experimental group and 384 in a Control group. The school system uses the designations "1", "2", and "3" for the homogeneous ability-groups in the schools with 1 being the highest and 3 the lowest. Subjects in this study were drawn exclusively from 2 and 3 level groups (although 1 students were employed at certain points for comparison purposes). Furthermore, those students included in the study, either as experimentals or controls, were among the upper half in the distribution on standardized achievement test scores for Black students in the 2 and 3 level groups.

Thus, subjects were Black students, in grade levels 7 to 12, assigned to level 2 and 3 ability-groups, but scoring in the upper half on standardized achievement for their racial and ability-level group.

Assignment of subjects to experimental and control conditions was accomplished on an entirely random basis from among the sample identified above. Moreover, assignment was accomplished separately for the different subject-matter areas. Among junior high school students, assignments were made independently for seventh and eighth grade English, social studies, science, and mathematics. Among high school students, assign-

ments were made independently for ninth, tenth, and eleventh grade English, eleventh and twelfth grade social studies, and ninth and tenth grade science.

Independent Variables

Treatment Conditions

Experimental Group. For each subject-matter area (at each grade level) identified above, randomly chosen students were notified by letter that the school guidance department had altered their ability-group assignment by moving them up to the next highest ability-group. Thus, experimental students originally assigned to 2 level ability-groups were moved up to 1 level ability-groups and those assigned to 3 level ability-groups were moved up to 2 level ability-groups. This was accomplished for each of the aforementioned subject-matter areas independently. It was thus possible for a student to have been moved up in as many as three subject-matter areas or as few as one. In each area in which a student was moved up, he was included in the experimental group for that subject-matter area. No attempt was made to control or balance out number of subject-matter areas in which a student was moved up.

Thus, students in the experimental group were arbitrarily moved up from the ability-group in which they had been originally assigned based primarily on teacher recommendations, to the next highest ability-group. In being assigned to the higher groups, students were distributed so that no more than

three experimental students appeared in any class. For purposes of labelling, those experimental students moved from 2 to 1 level classes will be referred to as the high experimentals and those moved from 3 to 2 level classes as the low experimentals.

Control Group. From among the student sample identified in the previous section, a randomly selected sub-sample of 2 and 3 level students were not moved up in grouping assignment. These students remained in the ability-groups to which they had been assigned by the guidance department based primarily on recommendations obtained from their previous teacher in each subject-matter area. It was possible for a student to be assigned to a control group in one subject-matter area and an experimental group in another. Again, assignment to experimental and control conditions was undertaken independently for each subject-matter area.

Thus, experimental and control students were equivalent in original grouping assignment. However, experimental students were arbitrarily moved up one level in a subject-matter area while control students retained their original grouping assignment. Those control students assigned to 2 level groups will be referred to as high controls while those assigned to 3 level groups will be referred to as low controls.

Mixed Comparison Group. Students in classes into which experimental subjects were moved constituted mixed comparison groups. Those students, outside of the sample, who had been

assigned to 1 level classes according to the ongoing group assignment mechanisms and were now joined as a result of the experiment by three experimental students (i.e., those that had been arbitrarily moved up from 2 to 1 level groups), constituted the high mixed comparison group. (No more than three experimental students were added to a class.) Those students, outside of the sample, who had been assigned to 2 level classes according to the ongoing group assignment mechanisms and were now joined as a result of the experiment by three experimental students (i.e., those that had been arbitrarily moved up from 3 to 2 level groups), constituted the low mixed comparison group. Comparison groups were included in the study to evaluate the effect of the upward movement process on those students originally assigned to the higher groups.

Unmixed Comparison Group.[2] At each of the two higher ability-levels, two classes were composed to include only those originally assigned to that level. That is, two classes of 1 level students were composed with no experimental subjects included (hereafter referred to as the high unmixed comparison group), while two classes of 2 level students were composed without experimental subjects included (hereafter referred to as the low unmixed comparison group). A comparison of mixed and unmixed comparison groups offered the possibility of evaluating the effect of upward movement on students originally assigned to the higher groups. Students in the comparison groups included both Black and White young-

sters.

Grade Level

Grade level was included in each subject-matter analysis as an independent variable. Two grade levels, seventh and eighth, were included in the analyses of each of the four junior high school subject-matter areas. Among high school subject-matter area, English included grade levels nine through eleven, social studies grade levels eleven and twelve, and science grade levels nine and ten.

Dependent Variables

Grades. Ongoing academic performance was evaluated in terms of grades earned by students in each subject-matter area during the course of the year in which the experiment was in progress. Grades were reported for three interim periods and final grades. Only second marking period grades are reported in this paper.[3] These grades covered the first semester and were reported in late January. The grading scale ranged from a low of zero to a high of 4.5.

Teacher recommendations. In late February of the academic year, approximately five months after the start of the experiment, teachers reported grouping assignment recommendations for their students in that subject matter for the following year. Each recommendation could be a 1, a 2, or a 3, recommending a student to the high, medium, or low group respectively.

Standardized test performance. In mid-February of the

academic year, students in the junior high schools took the Iowa Tests of Basic Skills (ITBS), and students in the high school took the Tests of Academic Progress (TAP). For social studies, the TAP social studies subtest (SS) and ITBS work skills subtest (W) were examined. For English, the TAP composition (COMP), reading (READ), and literature (LIT) subtests and ITBS verbal (V), reading (R), and literature (L) subtests were examined. For science, the TAP science (SCI) subtest was examined. (There is no ITBS subtest for science.) For mathematics, the ITBS arithmetic-one (A-1), and arithmetic-two (A-2) subtests were examined. (Mathematics was not included in the high school part of the study.)

Student satisfaction. On a questionnaire administered to all students in the high school and junior high schools in late February, students reported their satisfaction or liking for their present section in each subject area on a five-point scale ranging from very satisfied (a score of 1) to very dissatisfied (a score of 5).[4]

Attendance. Attendance records (i.e., number of days absent) were reported for all students in the high school upon completion of the academic year (in June). These records cover the full academic year in which the study was in progress (for the high school only).

Data Analyses

Six two-way analyses of variance were run for each subject-matter area separately, and for junior high school and

high school studies separately (data from the two junior high schools were combined), for each dependent variable. Thus, six analyses were run per dependent variable for high school social studies, high school English, high school science, junior high social studies, English, science, and mathematics. In each two-way analysis the second independent variable was grade level with findings for each grade level separately and all combined reported.

The six analyses of variance covered the combination of treatments described below:

- High experimentals (1) vs. high controls (2) vs. high mixed comparisons (3) vs. high unmixed comparisons (4)
- High experimentals (1) vs. high controls (2)
- High mixed comparisons (3) vs. high unmixed comparisons (4)
- Low experimentals (5) vs. low controls (6) vs. low mixed comparisons (7) vs. low unmixed comparisons (8)
- Low experimentals (5) vs. low controls (6)
- Low mixed comparisons (7) vs. low unmixed comparisons (8)

Results

High School Study

The high school results appear in Tables 1 and 2. Results

Insert Tables 1 and 2 about here

---

by grade level have only been presented for English since this is the only subject where a strong treatment by grade level interaction was consistently obtained. Also, English is the only one of the three subjects studied which spanned three grade levels; the others only spanned two.

Hypothesis One: High Experimentals (1) vs. Controls (2). High experimentals and their controls did not differ in grades, satisfaction, or attendance in any of the comparisons shown in Tables 1 and 2. Students moved from medium to high groups earned equal grades, were as satisfied, and had comparable attendance records to students not moved up. High experimentals received significantly[5] higher teacher recommendations in four of the six comparisons shown (no differences occurred in the other two instances). Of the 14 comparisons on standardized test performance, high experimentals significantly outperformed controls on five, were themselves outperformed on three, with no differences on six.

Based on teacher recommendation findings, hypothesis one is confirmed; i. e., high experimentals do get higher teacher recommendations than controls. Less overwhelming support was obtained from the test data.

Hypothesis One: Low Experimentals (5) vs. Controls (6). Low experimentals earned consistently lower grades than controls, but manifested equivalent satisfaction, and attendance. Higher teacher recommendations were obtained by experimentals in three of six comparisons (essentially only in English). Standardized

test performance by experimentals significantly exceeded controls in four of 14 instances with no differences on 10.

Thus, hypothesis one, when applied to the comparison between students moved from low to medium groups and those not so moved, receives some support. This support is almost exclusively in English while support among high groups was spread across English and social studies. In neither case, were science data supportive.

In the area of teacher recommendations, 54% of the high and low experimental students combined were recommended for the higher group as compared to only 1% of the controls being so recommended. This finding provides strong support for the hypothesis.

Hypothesis Two. Members of mixed and unmixed comparison groups earned equivalent grades, had equivalent attendance records, and, in all but one instance, had equivalent satisfaction. Members of unmixed comparison groups tended to earn higher teacher recommendations in English but not in the other subjects. On standardized tests, most comparisons showed no differences. In total, it would appear that the addition of upwardly displaced students to classes in small numbers did not affect the performance of students in those classes.

Other Comparisons. In most comparisons on all measures other than satisfaction, students in the higher groups (i.e., mixed and unmixed comparisons) did better than experimental and control students. In general, experimentals fell between

comparison students and controls with substantial differences still existing between them and comparison students. While these were not among the major comparisons of the study, it appeared that experimentals improved as a function of upward displacement but still needed considerably more improvement to reach the level of comparison students (all of whom fell normally into the higher groups).

Junior High School Study

Only the first hypothesis was tested in the junior high school study since it was impossible to keep any classes unmixed. The results of the junior high school study appear in Table 3.

- - - - - - - - - - - - - - - - - - - -
Insert Table 3 about here
- - - - - - - - - - - - - - - - - - - -

High Experimentals (1) vs. Controls (2). No differences between high experimentals and controls were found on grades or satisfaction. On teacher recommendations, high experimentals were significantly higher only in mathematics. No differences were found in the other three subjects. On standardized test performance, high experimentals significantly exceeded controls in social studies and English. No differences occurred in math and no test was given for science. Thus, in three of the four subjects (science excluded) high experimentals exceeded controls on either teacher recommendation or standardized test

performance.

Low Experimentals (5) vs. Controls (6). Experimentals earned lower grades than controls in math. No differences were found in the other subjects. Experimentals exhibited more satisfaction in science but less in English or math. Experimentals received significantly higher teacher recommendations in English with no differences in the other three subject matters. Standardized tests showed essentially no performance differences between experimentals and controls with some slight edge going to controls.

Thus, it would appear that for the high experimentals in the junior high school, hypothesis one was confirmed while for the low experimentals it was not.

Other Comparison. As in the high school portion of the study, comparison students did uniformly better than experimentals or controls on most measures.

Discussion

The results of this study suggest that grouping affects the self-expectations of students and their teachers, and thereby affects student performance. Even in the short space of one academic semester, students displaced into a higher ability group manifested better performance on standardized tests than students not upwardly displaced. While this finding did not occur in all instances, it occurred with sufficient

frequency among high school and junior high students to be accepted as an outcome of the upward displacement.

Equally dramatic was the finding that in many instances, students displaced into higher groups were subsequently recommended by their teachers for these higher groups. Among high school students, 54% of those moved up were subsequently recommended for the higher group as compared to only 1% of the controls. This tendency for upwardly displaced students to "stick" may be the result of their improved performance or a function of inertia in the grouping process. If the latter is correct, it would indicate that teacher's expectations of student performance are largely influenced by grouping assignment causing grouping assignments to persist over time. This is a significant indictment of the grouping procedure since it both locks students in and out, and must result in frustration and disillusionment. It is certainly something less than an educationally sound practice.

Upward displacement in group assignment appeared to have no effect on satisfaction, attendance, or grades. In moving upward, students must compete with a group that has demonstrated better academic performance than the one they have left. It would be hoped that over time their grades would become similar in distribution to those of their new classmates.

Proponents of grouping often base their advocacy on its value as an instructional device. By grouping students of like ability, teachers teaching to the class mean are more likely to

reach more of their students. Such arguments ignore the proposition, supported by this study, that grouping affects expectations. By contributing to the self-fulfilling prophecy, students come to perform in a way that "validates" the grouping assignment, damning many to a life of second-class citizenship. The ultimate goal of the public schools, developing well-adjusted and knowledgeable individuals, would seem to be hindered rather than enhanced by grouping. If students arbitrarily moved up can improve in performance and be absorbed by the higher group, as was shown in this study, then not moving them up is denying them the opportunity to enhance their self-expectations and consequently their performance.

It is worthy of note that the school system in which this study was done delayed their regular grouping assignment procedures until this study was completed. Then, upon the recommendation of its authors, instituted a major change in grouping procedures wherein students can opt by their own choosing to be upwardly displaced to the next highest ability-group. Greater encouragement for students to exercise this option is occurring as it becomes an accepted part of the program.

Our Galatea's became more "beautiful" when moved up to a higher group. This "beauty" was seen by both themselves and their teachers within one semester after the higher group "mantle" was placed on their shoulders. Now it will be possible for each student to choose to be as beautiful as he wants.

REFERENCES

Brophy, J. E. & Good, T. L. Teachers' communication of differential expectations for children's classroom performance: Some behavioral data. Journal of Educational Psychology, 1970, 61, 365-374.

Haberman, M. The relationship of bogus expectations to success in student teaching (or, Pygmalion's illegitimate son). Paper presented at Minneapolis meeting of the American Educational Research Association, 1970.

Rosenthal, R. & Jacobson, L. Pygmalion in the classroom. N. Y.: Holt, Rinehart, & Winston, 1968.

Thorndike, R. L. Review of Pygmalion in the classroom. American Educational Research Journal, 1968, 5, 708-711.

Tuckman, B. W. A study of curriculums for occupational preparation and education (SCOPE Program)--Final Report. New Brunswick, N. J.: Rutgers University (U. S. Office of Education Project No. 8-0334), 1970.

FOOTNOTES

[1]This paper was read at the New York meeting of the American Educational Research Association, 1971. The authors would like to acknowledge the assistance of John Soi, Mary Lois Partridge, and David Shields, and the support of the staff and school board of the Montclair Public Schools.

[2]These groups were not employed with the junior high school sample.

[3]Final grades are still being analyzed (due to a recording error in one subject in the high school and late reporting in the junior high schools).

[4]Additional questions on the questionnaire dealt with self-perception of performance in each subject and perceived and preferred grouping assignment in each subject.

[5]Differences at the 10% probability level were accepted as significant.

TABLE 1

Means and Comparisons for High School Social Studies, Science, and English Across Grade Levels

	Measure \ Group	1	2	3	4	5	6	7	8
Social Studies	Grades	1.9	1.8 ⋐	3.0	3.2	1.0 <	1.4 ⋐	1.8	1.8
	Teacher recom.	1.4 ⊜	1.9 ⋐	1.1	1.0	2.4	2.6 <	2.2	2.1
	TAP-SS	34.4 >	31.0 ⋐	42.9	44.4	25.1 >	21.5 ⋐	31.3	31.6
	Satisfaction	2.2	2.0	1.9	1.7	2.3	2.8	2.5	2.8
	Absences	12	13	8	9	20	16	15	12
Science	Grades	1.7	1.8 ⋐	3.2	3.4	0.8 ⋐	1.7 ⋐	2.1	1.9
	Teacher recom.	1.7	1.6 <	1.3	1.2	2.9	2.8 ⋐	2.0 <	1.6
	TAP-Sci	29.0	30.9 ⋐	39.8	41.4	23.3	23.0 ⋐	32.7	32.7
	Satisfaction	2.6	2.2	2.1 ⊜	1.4	2.2	2.8 ⋐	1.8	2.0
	Absences	12	12 ⊜	5	7	20	19 ⊜	10	9
English	Grades	1.9	1.8 ⋐	3.0	3.2	0.8 ⋐	1.5 ⋐	1.9	2.0
	Teacher recom.	1.6 >	2.0 ⋐	1.2 <	0.9	2.4 >	2.6 ⋐	2.0 <	1.8
	TAP-Comp.	39.9	39.2 ⋐	50.4	50.6	26.4	27.9 ⋐	39.6	39.3
	TAP-Read.	37.1	36.3 ⋐	47.6	48.1	25.7	23.4 ⋐	37.9	38.6
	TAP-Lit.	34.0	32.9 ⋐	42.2	42.5	25.2 >	23.0 ⋐	35.3	35.2
	Satisfaction	2.0	2.0	2.2	1.9	3.2	2.9 ⋐	2.3	2.9
	Absences	14	13 ⊜	7	7	20	21 ⊜	10	10

Note.--1 = high experimentals, 2 = high controls, 3 = high mixed comparisons, 4 = high unmixed comparisons, 5 = low experimentals, 6 = low controls, 7 = low mixed comparisons, 8 = low unmixed comparisons.

> $p < .10$ ⊜ $p < .05$

TABLE 2

Means and Comparisons for 9th, 10th, and 11th Grade English

	Measure \ Group	1	2	3	4	5	6	7	8
9th Grade	Grades	1.8	1.6 ⊜	2.9	3.3	0.8 <	1.2 ⊜	1.9	2.5
	Teacher recom.	1.7 >	2.1 ⊜	1.1 <	0.8	2.4 >	2.8 ⊜	2.0 <	1.7
	TAP-Comp.	40.3	38.8 ⊜	51.8	52.7	22.3	25.8 ⊜	33.8 <	40.0
	TAP-Read.	35.2 >	30.3 ⊜	43.3	42.7	16.1	19.5 ⊜	31.6	36.5
	TAP-Lit.	32.9	29.8 ⊜	38.9	38.7	18.7	18.8 ⊜	29.2 <	34.2
	Satisfaction	2.1	1.8	2.4	1.5	2.4	2.4 ⊜	1.8	2.2
	Absences	15	20 ⊛	6	6	22	26 ⊛	8	9
10th Grade	Grades	1.7	2.1 ⊜	2.9	3.4	0.6 ⊜	1.8 ⊜	1.9	1.7
	Teacher recom.	1.6	1.8 <	1.2 <	0.9	2.3 >	2.5 ⊜	1.9 <	1.7
	TAP-Comp.	38.1 <	41.8 ⊜	50.6 >	46.8	27.4	26.2 ⊜	40.6	39.9
	TAP-Read.	31.1 <	38.7 <	47.5	47.0	25.5	24.2 ⊜	33.6	37.9
	TAP-Lit.	30.3 <	35.5 <	43.8	41.7	25.3	24.4 ⊜	34.5	34.9
	Satisfaction	2.2	2.4	2.2	2.3	3.0	2.8	2.7	2.8
	Absences	14	10 ⊛	6	7	26	20 ⊛	11	10
11th Grade	Grades	2.2	1.9 ⊜	3.1	3.1	0.8 ⊜	1.8 >	1.6	2.0
	Teacher recom.	1.4 ⊛	2.1 ⊜	1.2	1.0	2.4	2.5 <	2.2 <	2.0
	TAP-Comp.	41.4 >	36.9 ⊜	48.9 <	52.1	31.7	30.0 ⊜	43.2 >	38.6
	TAP-Read.	45.2 >	39.9 ⊜	51.9	54.7	31.0 >	24.8 ⊜	42.2	36.8
	TAP-Lit.	38.7 >	33.4 ⊜	43.9	47.2	29.8 >	25.7 ⊜	39.7 >	33.5
	Satisfaction	1.7	1.7	2.0	1.8	3.4	3.6 ⊜	2.1	2.3
	Absences	14	9	10	9	18	17	13	9

> $p < .10$ ⊛ $p < .05$

TABLE 3

Means and Comparisons for Junior High School Social Studies, Science, English, and Mathematics Across Grade Levels

	Measure \ Group	1		2		3		5		6		7
Social Studies	Grades	2.5		2.5	⋜	3.6		1.5		1.0	⋜	2.0
	Teacher recom.	1.8		1.9	⋜	1.3		2.4		2.4		2.2
	ITBS-W	36.0	>	32.7	⋜	47.8		21.3	<	25.0	⋜	33.7
	Satisfaction	2.2		2.1		2.0		2.6		2.5		2.4
Science	Grades	2.5		2.3	⋜	3.5		1.3		1.4	⋜	2.2
	Teacher recom.	2.2		2.2	⋜	1.3		2.6		2.8	⋜	2.1
	Satisfaction	2.5		2.2		2.2		1.9	⋜	2.9	⋜	1.7
English	Grades	2.7		2.6	<	3.1		1.4		1.2	⋜	2.4
	Teacher recom.	1.6		1.7	⋜	1.3		2.3	⋜	2.8	⋜	1.9
	ITBS-V	31.7	⋜	27.0	⋜	37.4		16.5		18.3	⋜	27.5
	ITBS-R	49.9	⋜	42.6	⋜	58.2		25.3		26.8	⋜	39.9
	ITBS-L	53.1	⋜	45.4	⋜	56.7		29.8		31.1	⋜	45.0
	Satisfaction	1.9		2.3		2.0		2.2	<	1.6	>	2.1
Mathematics	Grades	2.3		2.2	⋜	3.2		1.0	<	1.6	<	1.7
	Teacher recom.	2.0	⋝	2.4	⋜	1.7		2.8		2.8	<	2.4
	ITBS-A1	20.8		21.8	⋜	31.2		13.0	<	15.7	⋜	19.3
	ITBS-A2	11.6		12.7	⋜	17.7		9.0		8.9	<	11.6
	Satisfaction	2.1		2.0		2.4		3.0	⋜	1.8	⋝	2.7

> p < .10 > p < .05